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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,418

04/10/2006

James R. Becker

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EXAMINER

GRANT, ALVIN J

ART UNIT

PAPER NUMBER

3723

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,418	Applicant(s) BECKER, JAMES R.	
	Examiner ALVIN J. GRANT	Art Unit 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 24-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 23 is/are rejected.
- 7) ☒ Claim(s) 19-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/10/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-23 in the reply filed on 1/31/08 is acknowledged.

Specification

2. The abstract to the invention is objected to. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. **Claims 19-22** objected to because of the following informalities:

Claim 19 refers to claim 19 as being dependent therefrom; and claims 20-22 depend from claim 19, and therefore have not been further treated.

4. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-3, 15 and 18** are rejected under 35 U.S.C. 102(b) as being anticipated by Brooke et al. 5,415,584.

Brooke discloses a particle blast apparatus comprising: a hopper adapted to store a supply of dry ice pieces, the hopper (23) having an upper opening (at 22) and a lower opening (26); a lid adapted to cover the upper opening of the hopper (col. 3, line 68-col. 4, line 2), the lid including a seal member providing a fluid seal between the lid and the upper opening of the hopper (this feature is inherent, since the hopper stores dry ice), and a mixing chamber disposed beneath the lower opening of the hopper, the mixing chamber including a mixing cavity (col. 4, lines 2-7), a dry ice inlet (84) in fluid communication with the mixing cavity and the lower opening of the hopper and adapted to permit dry ice pieces to be supplied from the hopper to the mixing cavity, a fluid inlet (87) adapted to connect a supply of pressurized gaseous fluid to the mixing cavity, and a fluid outlet (186) adapted to connect the mixing cavity to a blast gun or other dispensing device (col. 4, lines 20-26), the mixing chamber directing flow of the pressurized gaseous fluid from the fluid inlet through the mixing cavity and out the fluid outlet and permitting dry ice pieces supplied from the hopper to the mixing cavity to become entrained in the gaseous fluid flowing through the mixing cavity and out the

fluid outlet, the dry ice inlet of the mixing chamber further providing a fluid connection between the fluid inlet of the mixing chamber and the hopper to permit the gaseous fluid to pressurize the hopper when the lid seals the upper opening of the hopper; the supply of pressurized gaseous fluid is compressed air (col. 5, line 1); a pressure regulator (33) connected to the hopper, the pressure regulator limiting the air pressure within hopper to a predetermined maximum pressure; and the lid covers and seals the upper opening of said hopper from inside hopper.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 16, 17 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke et al.

Referring to claim 16, Brooke et al. does not specifically disclose the upper portion and the frusto-conical portion of the hopper comprise welded stainless steel. The Examiner takes Official Notice that welded stainless steel is commonly used to make hoppers, and therefore using welded stainless steel to make Brooke et al's. hopper is a matter of choice. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the hopper out of welded stainless steel, since it has been held to be within the general skill of a worker in the art to select a known material

on the basis of its suitability for the intended use as a matter of obvious design choice.

In re Leshin, 125 USPQ 416.

Referring to claim 17, Brooke does not specifically disclose the lower portion of the hopper forming an angle greater than 65° from a horizontal line when the axis of the frusto-conical section is vertical. The slope of the sides of a hopper is a matter of design choice since optimizing the slope may be obtained through experimentation. Furthermore, the slope being *greater* than 65° does not lend any criticality to the slope. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have sloped the sides of the hopper at an angle greater than 65° from a horizontal line when the axis of the frusto-conical section is vertical, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Referring to claim 23, Brooke et al. does not specifically disclose an O-ring sealing the lid of the hopper. The Examiner takes Official notice that the use of O-rings for sealing containers is notoriously old in the art. A person having ordinary skill in the art is presumed to have knowledge of all of the relevant prior art in his field of endeavor, as if it were all hanging on his workshop walls. *Filmon Process Corp. v. Spellright Corp.*, 274 F. Supp. 312, 313, 155 USPQ 635, 636 (D.D.C. 1967), *aff'd*, 404 F.2d 1351, 131 U.S. App. D.C. 374, 158 USPQ 533 (1968).

9. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke et al. in view of Shank et al. 5,407,379.

Brooke is described above. Brooke does not specifically disclose a predetermined maximum pressure of about 125 psi. Shank et al. discloses dispensing system for abrasive media in which the predetermined maximum pressure is about 125 psi so as to minimize the occurrence of pressure fluctuation within the system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the maximum predetermined pressure of Brooke et al.'s. apparatus to be about 125 psi as taught by Shank et al. so as to minimize the occurrence of pressure fluctuation within the system.

10. **Claims 5-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooke et al. in view of Becker et al. 6,174,225.

Brooke et al. is described above. **Referring to claims 5 and 6**, Brooke et al. does not specifically disclose a rotor mechanism for controlling the supply rate of dry ice pieces from the hopper to the mixing chamber. Becker et al. discloses a dry ice surface removal apparatus having a rotor mechanism for controlling the supply rate of dry ice pieces from the hopper to the mixing chamber so as to optimize the accuracy of the amount of particles that is being supplied. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the apparatus of Brooke et al. to have a dry ice surface removal apparatus having a rotor mechanism for controlling the supply rate of dry ice pieces from the hopper to the mixing chamber

as taught by Becker et al. so as to optimize the accuracy of the amount of particles that is being supplied.

Referring to claims 7-10, Brooke et al., as modified above, does not specifically disclose the size or configuration of the vanes of the rotor. The shape and size of the rotor, the vanes and orientations and be determined through experimentation. It would have been an obvious matter of design choice to make the different portions of the rotor of whatever form or shape was desired or expedient. A change in form or shape is generally recognized as being within the level of ordinary skill in the art, absent any showing of unexpected results. *In re Dailey et al.*, 149 USPQ 47.

Referring to claims 11-14, Brooke et al. does not specifically disclose a size reducing device for the dry ice pellets leaving the hopper. Becker et al. discloses a mechanism for reducing the size of the dry ice pellets so as to optimize the consistency of the for the environment in which they will be used. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the apparatus of Brooke et al. to have a mechanism for reducing the size of the dry ice pellets as taught by Becker et al. so as to optimize the consistency of the for the environment in which they will be used.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALVIN J. GRANT whose telephone number is (571)272-4484. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alvin J Grant/

Examiner, Art Unit 3723

/Joseph J. Hail, III/

Supervisory Patent Examiner, Art Unit 3723